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Staff Education Program on Smoking Cessation in Patients With Cardiovascular Disease

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This is to certify that the doctoral study by

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has been found to be complete and satisfactory in all respects,
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Abstract

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Project Submitted in Partial Fulfillment

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Abstract

Cigarette smoking in the United States constitutes a public health crisis, with millions of people having cigarette-related diseases and comorbidities. Although there is an increased prevalence of uncontrolled smoking among patients with cardiovascular diseases, many healthcare facilities, including the project site, lack adequate screening for tobacco use among cardiovascular patients. The 5As (asking, advising, assessing, assisting, and arranging) model of behavioral change provided the framework for the project. The practice-focused question for this project addressed whether a staff education program specifically designed to instruct healthcare providers on using the 5As intervention with cardiovascular patients would increase their knowledge of smoking cessation. . The 5As model is an evidence-based intervention made up of asking ,advising ,assessing ,assisting, and conducting follow-up and supporting the patient's cessation efforts. Data was collected using questionnaires issued before and after the project to assess knowledge levels of participants comprised of two physicians, one NP, and two medical assistants. The responses were scored against correct answers and then analyzed using a paired samples *t*-test. Analysis of data indicated that the education of healthcare providers was effective in encouraging smoking cessation among cardiovascular patients. The difference between the pre ($M = 6.4$, $SD = 1.34$) and postintervention survey scores ($M = 8.4$, $SD = 1.52$) of the healthcare providers ($N = 5$) was significantly higher, $t(4) = -3.16$, $p < 0.05$. The implementation of the intervention may result in positive social change by increasing self-efficacy among healthcare providers at the project site concerning screening for tobacco use and initiation of cessation programs.

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Section 1: Nature of the Project

Introduction

Smoking is a prevalent public health issue in the United States. The Centers for Disease Control and Prevention (CDC, n.d.-b) reported the smoking rate in the 2020, which equates to more than 35 million United States was 14 per 100 adults in adults. The incidence of cigarette smoking in the United States reflects the nation's public health crisis. For instance, the CDC highlighted that at least 16 million people in the United States had cigarette-related diseases and comorbidities as of 2020. In addition, cigarette smoking attributes to significant mortality rates. There are at least 480,000 cigarette-related deaths annually (Healthy People, 2020). The statistic indicates at least one in every five deaths is cigarette related.

The potential for substance use disorders is another risk associated with smoking that concerns U.S. public health advocates. The uncontrolled use of tobacco is associated with an increased risk of dependence and addiction (Ziedonis & Larkin, 2017). Indeed, the fifth edition of the *Diagnostic and Statistical Manual of Mental Disorders* (*DSM-5*, 2012) defined uncontrolled tobacco use as a substance disorder. Based on the *DSM-5* criteria, healthcare providers can diagnose tobacco abuse if an individual meets any two of the 11 conditions listed. For instance, healthcare providers may diagnose substance-use disorder for patients who consume excessive tobacco smoke for extended periods of struggle to control their substance use (Ziedonis & Larkin, 2017).

Smoking cessation as a public health issue aligns with the U.S. Healthy People 2020 goals. As part of the initiative, the Office of Disease Prevention and Health Promotion (ODPHP) outlined several objectives concerning tobacco use control in the

United States. aimed at reducing the initiation and use of tobacco among children, teenagers, and adults (Healthy People, 2020). The department also aims to promote smoking cessation efforts among tobacco users. ODPHP sought a combination of legislative and healthcare strategies to promote smoking cessation. The identified legislative efforts include increased taxes on tobacco products and controlled advertisement policies (Healthy People, 2020). Concerning healthcare, the ODPHP proposed a combination of clinical interventions, sensitization campaigns, and control programs. This project aligns with the Healthy People 2020 goals involving utilizing clinical interventions to promote smoking cessation. Promoting smoking cessation programs positively impacts population health, including reducing smoking-related morbidities and mortalities (Kamimura et al., 2018). Smoking cessation is also associated with positive social change aligning with Walden University's mission.

Problem Statement

The identified problem was the increased prevalence of uncontrolled smoking among patients with cardiovascular diseases. Lee and Son (2019) noted that tobacco use increased heart failure and mortality among patients with cardiovascular diseases compared to nonsmokers with the condition. Smoking-related illnesses are associated with significant financial implications. The CDC (n.d.-a) noted that the United States incurred at least $170 billion in health-related expenses in 2020. The CDC attributed an additional loss of $156 billion to lost productivity. Lee and Son identified the problem of uncontrolled smoking cessation modalities in a clinical setting in Northeast Texas. A survey of the practice setting indicated the healthcare providers cared for at least 1,500 patients with cardiovascular diseases monthly. At least 50% of the surveyed patients with cardiovascular diseases indicated that they used tobacco.

The identified population was at risk of exacerbations, such as heart failure and mortality, associated with smoking (Lee & Son, 2019).

There continue to be reduced efforts concerning patient screening and management when individuals visit local settings. Polubriaginof et al. (2017) found evidence of reduced screening for smoking among cardiovascular patients during their visits to practice settings. One issue is that healthcare providers face significant difficulties concerning asking patients for their smoking status. There are no standard criteria and terminologies for tobacco use screening (Polubriaginof et al., 2017). The reduced screening rates have been counterproductive to the U.S. Preventive Services Task Force (USPSTF) objectives. The task force recommended screening all adults who visited clinical settings to determine their smoking status and initiate cessation programs (Olenik & Mospan, 2017). However, there was no comprehensive screening for tobacco use at the identified practice setting, even with the recommendations. A survey of the healthcare providers at the project site identified reduced self-efficacy as the most significant barrier to effective screening. The healthcare providers noted that they struggled to initiate the screening process while maintaining appropriate relationships with their patients at the local setting.

The project has relevance to nursing practice. The intervention was intended to promote tobacco use screening at the identified practice setting. The project constituted an educational intervention designed to increase the healthcare workers' self-efficacy concerning tobacco screening. Findings show that the educational intervention increased healthcare workers' knowledge levels concerning tobacco use and screening. Rice et al. (2017) noted that nurses comprised a significant portion of U.S. healthcare workers, which reinforces their fundamental role in smoking

cessation. The authors also highlighted that the American Nurses Association identified nursing practice as integral to achieving reduced smoking rates aligned with the Healthy People 2020 goals. Nurses are involved in screening patients for smoking habits and promoting interventions that foster cessation and second-hand tobacco exposure (Rice et al., 2017).

Purpose

The gap in practice addressed in this project was the inadequate screening for tobacco use among cardiovascular patients at the selected project site. The aim of implementing this project was to address the reduced self-efficacy among healthcare providers at the project site concerning screening for tobacco use and initiation of cessation programs (Mak et al., 2018). Consequently, there was a need to fill the identified gap in practice to promote improved tobacco use screening among cardiovascular patients. The Doctor of Nursing Practice (DNP) project included the implementation of an educational program to train healthcare providers at the identified clinic on the 5As model of promoting smoking cessation. The model includes the following components: asking, advising, assessing, assisting, and arranging (AHRQ, 2012).

The target population comprised the healthcare providers working at the identified practice setting. The participants constituted physicians, a nurse practitioner (NP), and medical assistants. The selected intervention was an educational program that educated healthcare providers on the 5As of tobacco use screening, which include ask, advise, assess, assist, and arrange (Mak et al., 2018). Following the project's implementation, I compared the participants' knowledge levels concerning tobacco use screening to their self-efficacy before receiving training. The primary outcome

was increased self-efficacy among healthcare providers utilizing the 5As to screen and initiate cessation among cardiovascular patients with a smoking history. The practice-focused question was: Will a staff education program specifically designed to instruct healthcare providers on using the 5As intervention with cardiovascular patients increase their knowledge of smoking cessation? The question incorporated the PICO format of evidence-based medicine and provided a foundation for the development of the project.

Nature of the Doctoral Project

The DNP project involved developing and implementing an educational program to equip nurses with knowledge concerning tobacco use screening and initiating smoking cessation strategies. I relied on evidence-based interventions to develop an educational program to train the participants on the 5As of smoking cessation (Mak et al., 2018). To inform the healthcare providers on the 5As of smoking cessation, I used learning resources such as Microsoft PowerPoint presentations and videos. I also formulated a survey to use as the pre- and posttest tool. An expert panel consisting of the nurse manager, an administrator, and a cardiologist reviewed and validated the educational program and assessment tool before their implementation to ensure they met the learning objectives. The expert panel also assessed the educational program based on the formulated learning objectives, educational content, and teaching materials. The purpose of the validation was to ensure the plan promoted the healthcare providers' efficacy concerning utilizing the 5As to promote smoking cessation (Santos-Rocha et al., 2020).

I applied for approval from Walden University's Institutional Review Board (IRB) before implementing the educational program. After obtaining approval, I

approached the target population to obtain their consent. Participants who agreed to receive training undertook pre- and posttest evaluations. The collected data facilitated assessing potential changes in the healthcare providers' knowledge levels following the program's implementation.

My goal in developing the DNP project was to address the identified gap in practice concerning tobacco use screening. The first knowledge gap entailed healthcare providers' reduced efficacy in the assessment of tobacco use among cardiovascular patients. The second gap involved healthcare providers' inability to determine their patients' willingness to stop smoking. The last gap was about the limitation in the healthcare providers' knowledge of evidence-based interventions that effectively promote smoking habits. The staff education program was intended to fill these knowledge gaps by educating the healthcare providers on the 5As of smoking cessation (Mak et al., 2018). The first knowledge gap addressed increased healthcare providers' self-efficacy concerning the initiation of screening for tobacco use. The healthcare providers received education on how to ask their cardiovascular patients about their smoking habits. Increasing healthcare providers' ability to assess their patients' willingness to stop smoking addressed the second knowledge gap (Mak et al., 2018). Following the staff education program's implementation, the participants increased their knowledge concerning evaluating their patients aligned with the 5As framework for smoking cessation. Educating the participants on the appropriate evidence-based smoking cessation interventions, thus, addressed the identified knowledge gap.

Significance

The DNP project's primary stakeholders comprised the healthcare providers, including medical assistants, NPs, and physicians, and patients with cardiovascular diseases at the identified practice setting. The healthcare providers benefited from the educational program by gaining knowledge concerning tobacco use, smoking, and management among their patients (see Mak et al., 2018). A survey of the healthcare providers at the selected clinic indicated they had reduced self-efficacy concerning tobacco use screening initiation when providing cardiovascular patients care. Additionally, the healthcare providers had limited knowledge about appropriate evidence-based interventions that are effective in smoking cessation. Consequently, the staff educational program benefited the healthcare providers by training them on the 5As technique of smoking cessation (see Mak et al., 2018).

Patients with cardiovascular diseases who visit the identified clinic possibly benefited from the DNP project. Lee and Son (2019) noted tobacco use among patients with cardiovascular diseases increased their heart failure and mortality risk. A survey of the identified clinic indicated that at least 50% of the 1,500 patients who visited the practice setting had a smoking history. Consequently, the patients were at an increased risk of heart failure and exacerbations than their nonsmoking counterparts (Lee & Son, 2019). Following the implementation of the DNP project, the patients with a history of smoking received improved screening and facilitation of smoking cessation. Patients who receive smoking cessation interventions will likely experience reduced heart failure risk (Cole, 2019).

The DNP project may contribute useful knowledge to nursing practice. The training program educated the healthcare providers on evidence-based interventions

that they can apply to screen patients for tobacco use. Mak et al. (2018) noted that nurses have a significant role in screening patients for smoking habits. The authors noted that educating nurses concerning screening increases their self-efficacy in assessing their patients' smoking status. This DNP project fostered nurses' role in tobacco use screening by educating them on the 5As technique of smoking cessation. The training increased the healthcare providers' awareness of the appropriate evidence-based practices that promote smoking cessation among cardiovascular disease patients.

The DNP project has the potential for transferability to other practice areas. The staff educational program's objective was to increase the knowledge of healthcare providers at the project site concerning tobacco use screening among patients with cardiovascular diseases. However, the intervention to implement screening of all patients may transfer to other primary care facilities. The transfer to other practice areas aligns with the Healthy People 2020 goals, which seek to foster screening to identify new smokers and initiate appropriate cessation interventions (Healthy People, 2020). Consequently, the implementation of the screening protocol outlined in the DNP project may facilitate broader identification of patients (not just those with cardiovascular diseases) with a smoking history who could benefit from cessation programs.

The promotion of smoking cessation interventions has implications for positive social change. The DNP program is also a fulfillment of Walden University's goals for social change. The university fosters scholar-practitioner skills to impart positive social change at the community level (Walden University, 2020). Promoting tobacco cessation is consistent with this aim because tobacco smoking is associated

with reduced social functioning. Martin and Sayette (2018) noted that smoking reduced patients' well-being and ability to interact with other people. Smoking cessation promotes patients' quality of life. Another social change may entail the disruption of potential intergenerational transmission of tobacco use. Dwivedi et al. (2016) noted that a family history of tobacco use was prevalent among smokers. Consequently, the smoking cessation program may reduce tobacco use among the patients and their family members.

Summary

Tobacco use is a significant risk factor for condition exacerbation among patients with cardiovascular diseases (Lee & Son, 2019). Patients with a smoking habit have an increased incidence of heart failure and mortality than nontobacco users with cardiovascular diseases. Overall, tobacco use is associated with deteriorated healthcare outcomes. For instance, 480,000 deaths in the United States were due to tobacco use in 2018 (Healthy People, 2020). Whereas tobacco use is a known public health concern, there continues to be ineffective screening and cessation programs. Research shows reduced knowledge levels among healthcare providers concerning patient screening and the initiation of cessation programs (Mak et al., 2018). Consequently, I sought in this DNP project to educate healthcare providers to promote their self-efficacy concerning patient screening for tobacco use. The staff education program has implications for positive social change for the identified stakeholders at the project site as well as nursing practice through the creation of knowledge on the efficacy of staff education for smoking cessation.

The first section provided a basis for the project concerning its purpose, significance, and nature. In Section 2 , I will provide context for the project, including

its relevance to nursing practice, problem background, local situation, and relation to nursing theories and concepts. The section contains an evaluation of my role and that of project team.

Section 2: Background and Context

Introduction

There is extensive evidence of the negative impacts of tobacco use and the challenges in encouraging cessation due to tobacco's addictive properties. Tobacco smoking involves inhaling harmful and toxic substances that adversely affect users' health (CDC, n.d.-c). Nicotine is the main chemical in tobacco that causes addiction to cigarette use (Polubriaginof et al., 2017). Nicotine alters the normal functioning of the brain within 10 seconds of inhalation (Benowitz N.L., 2009). The main challenge to tobacco cessation is withdrawal symptoms characterized by fatigue, constipation, irritability, anxiety, difficulty concentrating, and intense craving for the product 2 to 3 days after quitting smoking (Campbell-Sills et al., 2019). Fear of experiencing withdrawal symptoms is among the core factors that impede tobacco users from leaving the habit, ultimately resulting in addiction. An addictive practice, tobacco smoking is associated with adverse side effects, including damage to the heart, kidneys, lungs, and reproductive system (Campbell-Sills et al., 2019). The carcinogenic potential of inhaled nicotine through cigars, cigarettes, or pipes is also well documented (Campbell-Sills et al., 2019).

The purpose of this doctoral project was to investigate the implication of implementing a staff education program for healthcare providers working at a primary healthcare clinic, to improve their knowledge on the best evidence-based approaches to smoking cessation. The education program uses the Ask, Advice, Assess, and Arrange (5As) protocol to help tobacco users quit smoking. The practice-focused question for the project was, Will a staff education program specifically designed to

instruct healthcare providers on using the 5As intervention with cardiovascular patients increase their knowledge of smoking cessation?

In this section, I provide background and contextual information related to the project. The topics covered in this section include the concepts, theories, or models used in the project and their relevance to nursing practice. The section also contains local background information on the problem. I also discuss my role as the DNP student in the project and that of the project team.

Concepts, Models, and Theories

Concepts

Three concepts are most relevant to this DNP project. The concepts include nicotine dependence, high-risk situations, and influence of diagnosis. I discuss the concepts in detail in this subsection.

Nicotine Dependence

Nicotine dependence entails a chronic condition where patients crave tobacco use. Grant et al. (2020) noted that individuals who use tobacco are susceptible to nicotine dependence associated with deteriorated dependence and comorbidity. This concept significantly aligned to the DNP project regarding identifying patients with a history of tobacco use that put them at risk of nicotine dependence.

High-Risk Situations

The concept of high-risk situations has been attributed to individuals' smoking cessation abilities and subsequent relapse risks. Zvolensky et al. (2019) identified high-risk situations as comprising access to drugs and lack of support to uphold smoking cessation. Research shows that individuals' environments determine their ability to cease smoking (Baumeister, 2017). The concept of high-risk situations was

relevant to the DNP project because, in the 5As model of smoking cessation, identifying high-risk situations is an essential facet of the assistive step.

Influence of Diagnosis

Individuals' health statuses influence their smoking cessation habits. Jones (2017) noted that patients are likely to exhibit increased motivation for smoking cessation upon being diagnosed with a chronic condition. Similarly, the target patients were individuals with cardiovascular diseases. Consequently, I expected that the patients would have increased motivation to undertake smoking cessation.

Model

The 5As framework was the guiding model for this project. The U.S. Department of Health and Human Services (2008) developed the model as a framework for promoting smoking cessation. The trans-theoretical model created by Prochaska and DiClemente in the 1970s informed the development of the 5As approach of behavior change (Sturgiss & Van Weel, 2017). The 5As model is useful in both obesity management and smoking cessation (Vallis et al., 2013).

The five steps of the 5As model are ask, advise, assess, assist, and arrange (Sturgiss & Van Weel, 2017). The first step involves the identification and documentation of tobacco use status for all patients in each visit. During this stage, care providers should ask simple questions regarding their patient's tobacco use (Olenik & Mospan, 2017).

The second step is to advise. The focus is to encourage tobacco users to stop smoking using a straightforward and personalized approach (Sturgiss & Van Weel, 2017). In this stage, healthcare professionals are encouraged to be compassionate when encouraging patients to quit smoking. Healthcare providers should also identify

high-risk patients and develop case-specific smoking cessation messages. Healthcare providers should inform patients about smoking cessation benefits (Sturgiss & Van Weel, 2017).

The third step involves the assessment of the health issue faced by the at-risk population. A nurse assesses whether tobacco users are willing to quit smoking (Sturgiss & Van Weel, 2017). During this stage, healthcare professionals use the Stage of Change Assessment questions to establish a patient's readiness to quit smoking and identify their current change stage (Olenik & Mospan, 2017).

The fourth stage entails assisting those ready to stop smoking overcome the addiction habit (Agency for Healthcare Research and Quality [AHRQ], 2012). During this phase, healthcare providers use counseling and pharmacotherapy to encourage smoking cessation. Nurses have expressed their confidence in patients' ability to successfully quit using tobacco (Sturgiss & Van Weel, 2017). The nurses' role is to help tobacco addicts who are willing to quit to cease tobacco smoking.

The fifth step centers on healthcare providers' arrangements and entails scheduling follow-up contact (AHRQ, 2012). Follow-up contact after the first week of quitting smoking is essential to avoid relapse episodes. Evidence shows that making follow-ups with the patients increases their likelihood of quitting smoking (Sturgiss & Van Weel, 2017). Hence, follow-up appointments should be set, preferably at the quit date, 1 week following the quit date, and 1 month after the cessation. Healthcare providers may schedule follow-up contact through either telephone or in person.

The 5As' model has been found to be valid and applicable in best-evidence nursing practice. Sturgiss and Van Weel (2017) argued that the underlying strength of the 5As model is in considering individuals' perceived needs as a starting point. It

makes it possible to direct the process of care towards patients and their situations. The model promoted smoking cessation initially but currently fosters obesity management following modification (Sturgiss & Van Weel, 2017). The 5As model plays a fundamental role in influencing behavioral change among overweight and obese patients. Gorzkowski et al. (2016) established that implementing guideline-based tobacco interventions could positively influence the youth to quit tobacco smoking. The findings further showed that implementing the 5As tobacco cessation guideline resulted in significant clinical care changes, including increased youth tobacco cessation rates in pediatric primary healthcare practice. Because it has been shown to be effective in promoting tobacco cessation, the 5As model was suitable for this project.

Theory

Kurt Lewin's theory of change served as the theoretical framework for this project. Lewin's theory postulates that behavior change occurs in three stages; unfreezing, moving, and refreezing (Hussain et al., 2018). The unfreeze-change-refreeze model identifies the forces that influence change and the methods of addressing challenges in implementing an intervention. The theory relies on driving and restraining forces from describing the change in behavior after implementing an intervention (Hussain et al., 2018). Lewin (1951) argued that for change to integrate successfully, leaders must create the impression that change is necessary to achieve the desired behavior.

The first step of change is unfreezing, and it entails creating awareness about the need for change. The change agent explains how the current state hinders the healthcare organization (Hussain et al., 2018). Considering that many people are

naturally likely to resist change, the goal during the unfreezing stage should be to show individuals the necessity of change. They should be encouraged to abandon their old ways of thinking and behaviors and embrace new habits likely to improve their status (Hussain et al., 2018). In this project, the unfreezing stage involved educating nurses on smoking cessation in patients with cardiovascular disease. The driving forces include educating staff members regarding the potential benefits of introducing the proposed change in improving the desired patient outcomes. Effective communication is vital in preparing the nursing staff for change during the unfreezing stage (Hussain et al., 2018). Lewin (1951) asserted that informing people was likely to prompt them to embrace change.

The second step is the moving stage, and it entails changing the feelings, behaviors, and thoughts of individuals (Lewin, 1951). The change agent encourages individuals to alter their mindsets and embrace change (Hussain et al., 2018). Although change often occurs during the transitioning phase, most people are generally reluctant to transition because of fear of the unknown and uncertainty. In the current project, effective communication and sufficient support helped the nurses familiarize themselves with the change. The change in this project entailed implementing an educational program based on the 5As of promoting tobacco-smoking cessation. The project encouraged the nurses to embrace the new reality during the changing step through communication and involvement. Lewin (1951) suggested that it was essential to continually remind individuals of the need for change and how they are likely to benefit from the transformation. The team leader continuously reminded the nursing staff of the importance of implementing the

change. The education program was beneficial to staff, patients, and the healthcare organization.

The third phase is the refreezing stage and entails reinforcing, solidifying, and stabilizing the new behavior patterns following the successful implementation of change (Cummings et al., 2016; Hussain et al., 2018). During this stage, nurse leaders should ensure the sustainability of the status quo. The change is the new equilibrium, and the management must ensure that the nursing staff members do not revert to their old practices (see Lewin, 1951). An introduction of a desirable stimulus is vital to create sustainability of the new change within the organization. Positive rewards and acknowledgment of personal efforts can motivate the nursing staff (Cummings et al., 2016). The current project informed the nursing staff about the 5As approach as the new standard care protocol.

Lewin's change theory is a validated approach in terms of its application in the nursing care practice. Barrow and Toney-Butler (2017) demonstrated that positive change is sustainable using Lewin's planned change theory. Assessment of change facilitators and barriers is fundamental in promoting sustained change because it enables leaders to reduce the impediments (Barrow & Toney-Butler, 2017). Encouraging open communication can mitigate barriers to successful change. Additionally, the provision of incentives and regular staff recognition can strengthen the facilitators. Gupta et al. (2017) observed that evidence-based practice in clinical settings requires learning and unlearning for sustainable change. Overall, there was sufficient evidence to support the change theory; hence, its authenticity and reliability enabled implementation of the practice change in the current project.

Relevance to Nursing Practice

Tobacco smoking is a significant health issue in the United States In 2018, tobacco smoking prevalence among Americans aged 18 and above was 14 out of 100 people (CDC, n.d.-b). The rate of tobacco smoking is higher in men (16 out of 100 persons) than in women (12 out of 100 adults), data from the CDC (n.d.-b) show. According to Garcia et al. (2017), tobacco smoking is the primary cause of preventable deaths in the United States. Also, cigarette smoking among adults in the United States is responsible for over 480,000 annual deaths (CDC, n.d.-b). One in every five deaths in the United States is due to cigarette smoking, a statistic that reinforces the need to implement tobacco use interventions (CDC, n.d.-c).

Tobacco smoking is associated with adverse implications, including lung cancer, osteoporosis, vascular dementia, stroke, chronic obstructive pulmonary disease (COPD), diabetes, and cardiovascular and respiratory diseases (CDC, n.d.-c; West, 2017). Tobacco smoking causes preventable deaths in a country associated with high substance abuse (CDC, n.d.-c). Data from the CDC (n.d.-c) show that tobacco use accounts for more than 7 million global deaths. The number may exceed eight million people yearly by 2030 if the current trend of smoking continues.

The associated adverse implications of smoking tobacco necessitate various interventions to address the public health problem. According to government officials, nursing practitioners should address tobacco smoking by introducing positive interventions to social change within healthcare institutions (Healthy People 2020). Smoking cessation programs encourage nicotine users to stop using the substance (Olenik & Mospan, 2017). Educating patients on the benefits of quitting smoking and

informing them of the negative health implications can encourage stopping tobacco use (Matthews, 2018).

Pharmacological therapies and behavioral interventions have effectively addressed the gap in practice on the practical approaches to smoking cessation (Hasan et al., 2019). Pharmacological interventions for smoking cessation reduce the intensity and urge of smoking (CDC, n.d.-d). Behavioral support focuses on developing people's capacity to implement effective plans for smoking cessation. The main pharmacological therapies commonly used include nicotine replacement therapy and bupropion (Shoaib & Buhidma, 2018). The substitution of nicotine from cigarettes with safer formulations is effective in aiding smoking cessation because it significantly reduces the risks of addiction. The atypical antidepressant bupropion is efficacious in promoting smoking cessation (Shoaib & Buhidma, 2018). Bupropion acts as a nicotinic receptor antagonist that treats the pathways affected by smoking and eases nicotine cravings and withdrawal (Beard et al., 2016; Nagano et al., 2016).

The current doctoral project advances nursing practice by offering a tool that can improve healthcare providers' knowledge, attitudes, and the profession by assisting patients in quitting smoking. Nursing practice and healthcare providers' roles profoundly affect the patient's treatment and recovery process (Hasan et al., 2019). Educational interventions on smoking cessation in healthcare settings effectively improve healthcare providers' knowledge, attitudes, and ability to assist patients in quitting smoking (Semwal et al., 2019). The use of the 5As model will improve the situation by influencing tobacco users to cease smoking (Matthews, 2018). The current project introduced smoking cessation programs where trained and skilled healthcare providers advised tobacco users. Educating healthcare providers using the

5As model ensures the success of tobacco cessation initiatives (AHRQ, 2012). The staff education program resolved the existing knowledge gap among healthcare professionals at the project site on how best to assist tobacco users in quitting harmful behavior.

Local Background and Context

Tobacco smoking is one of the main leading causes of preventable deaths globally (CDC, n.d.-d). According to the World Health Organization (WHO), tobacco use has caused the death of more than eight million people annually, with about seven million demises resulting from the direct use of tobacco (WHO, 2020). Additionally, exposure to secondhand smoke causes approximately 1.2 million deaths. The common complications caused by tobacco smoking include COPD, diabetes, lung disease, heart disease, cancer, and stroke (WHO, 2020). Statistics show that smokers are ten times more likely to die earlier than non-smokers (CDC, n.d.-c). The CDC projections show that nearly 5.6 million Americans aged below 18 years are likely to die prematurely from smoking-related conditions (CDC, n.d.-c). However, appropriate implementation of smoking cessation interventions can control and mitigate the current prevalence rate.

Smoking is a significant issue affecting both the federal and state governments. The overall economic cost of smoking is $300 billion annually, including about $170 billion spent on direct medical care for adults (CDC, n.d.-c). Additionally, the U.S. federal government incurs nearly $160 billion on lost productivity from secondhand smoke (CDC, n.d.-a). In the year 2020, states may collect $27.2 billion from tobacco taxes, but they only spend $740 million in supporting cessation programs (CDC, n.d.-a). Without enough funding, healthcare

facilities must allocate budgets to support smoke cessation programs. The doctoral project aimed to address the practice problem by proposing an educational program based on the 5As model. I implemented the program in a clinical setting situated in Northeast Texas. The facility specializes in treating patients with heart conditions, consisting of one NP, three physicians, and medical assistants.

At the target facility, a staff education program on tobacco smoking was for healthcare workers. The goal was to improve their knowledge, attitudes, and practice of helping tobacco addicts quit their smoking habit (Semwal et al., 2019). A survey conducted at the clinic showed that approximately 50% of the cardiovascular unit patients were tobacco users. I anticipated implementing the project at the facility using the 5As model improved the healthcare providers' knowledge and help patients with tobacco smoking cessation.

Among the locally used terms in the proposed project include tobacco, nicotine, smoking status, tobacco addiction, smoking cessation, tobacco addiction treatment, 5As model, and cardiovascular diseases (CVD). Tobacco is a harmful product often smoked, sniffed, or chewed to stimulate their nerves and body (CDC, n.d.-d). Nicotine is the chemical found in tobacco that makes it hard for tobacco users to quit. An individual's smoking status entails information documented regarding cigarette smoking. A person can either be a current smoker, ex-smoker, or have an unknown smoking history. Tobacco addiction relates to the inability to stop using the substance. Cessation involves the process of discontinuing tobacco smoking (Olenik & Mospan, 2017). Tobacco addiction treatment entails various interventions aimed at assisting the habitual users of the product in stopping smoking. The 5As of smoking include five main steps. They help healthcare providers successfully identify tobacco

users and select the most appropriate interventions depending on their willingness to quit.

Definition of Terms

Healthcare worker: A term that refers to healthcare providers at the primary care practice. I expect that the staff education program will help healthcare providers improve their knowledge regarding using the 5As model (Sturgiss & Van Weel, 2017) to promote smoking cessation among cardiovascular disease patients.

Screening: The identification of patients who are currently smoking or are susceptible to relapse. Tobacco use screening provide a basis for recommending smoking cessation. Screening in this project involved the first three steps, *ask, advise,* and *assess.*, of the 5As model.

Smoking cessation: The discontinuation of tobacco use (WHO, 2020). In this project, smoking cessation will imply seeking counseling, using medication, and quitting tobacco use. The intervention for smoking cessation involves implementing a staff education program focused on the 5As model (Sturgiss & Van Weel, 2017) that is intended to improve healthcare providers' knowledge, attitudes, and ability to help patients quit smoking.

Smoking status: An individual's relationship to smoking as determined by their responses to questions about their cigarette smoking behaviors, if any (CDC, n.d.-c). Individuals' smoking status can be a smoker, ex-smoker, never smoked, or unknown smoking status. A current smoker is a person who has smoked within the past 28 days. Moreover, they have smoked more than 100 cigars in their lifetime (CDC, n.d.-c). Conversely, former smokers are individuals who have used more than 100 cigarettes in their lifetime but have not smoked in the past 4 weeks (CDC, n.d.-d).

Tobacco use: The intake of the tobacco substance, often for recreational use. Generally, tobacco use entails ingestion by multiple means that include smoking, chewing, and sniffing (West, 2017). However, in the context of this capstone project, the meaning of tobacco use will be limited to intake by smoking.

Role of the DNP Student

My primary role as a DNP student was to be a team leader for the project. The student's role in the project involved developing staff educational programs based on the 5As model intended to address healthcare providers' specific needs in providing care to patients at the facility. I designed the staff education program based on evidence-based approaches for healthcare provider training, including using PowerPoint tools. I developed a pre- and posttest for evaluating the healthcare provider's level of knowledge on smoking cessation interventions.

The most notable motivation for the project included the choice of the intervention used. The 5As approach for smoking cessation has been widely proven effective in helping tobacco addicts quit the habit (Chai et al., 2018; Martínez et al., 2017). Hence, the project's intervention is more likely to enhance healthcare providers' knowledge, attitudes, and self-efficacy in delivering smoking cessation interventions. The healthcare providers used their knowledge to help tobacco users abandon cigarette-smoking behaviors. The perspectives that could affect the DNP's motivation and choices include utilizing other approaches previously used for addressing the practice problem.

Role of the Project Team

An expert panel consisting of the nurse manager, an administrator, and a cardiologist evaluated the staff education plan to teach the healthcare providers how

to use the 5A protocol. A nurse educator offered lectures and training intended to improve knowledge of smoking cessation. An investigator with experience in data collection helped me in data collection. The nursing project coordinator provided the support needed during the evaluation of the educational program.

Summary

Tobacco smoking is associated with negative implications on the users' health, including damage to the lungs, kidneys, heart, and reproductive system. Tobacco smoking causes nearly 7 million deaths across the globe annually. Additionally, tobacco smoking is the leading cause of preventable deaths in the U.S. Besides preventable deaths, smoking may also cause various conditions, including COPD, dementia, stroke, diabetes, and cancer.

The DNP project had the potential to address the identified gap in practice. The project sought to address the existing gap in practice regarding effective interventions in promoting smoking cessation among patients with cardiovascular conditions. The project entailed educating healthcare providers regarding the utilization of the 5As model for smoking cessation. The staff educational program improved healthcare providers' knowledge about screening for patients' smoking status. The healthcare providers used the acquired knowledge to evaluate patients' willingness to quit smoking and successfully abandon the habit. Various scholars have attested to the validity and applicability of the 5As framework in best-evidence nursing practice, citing its underlying strength in considering the patients' perceived needs as the starting point. The supporters of the model argue that the framework enables healthcare professionals to direct care towards patients and their situations.

Lewin's Change Theory is the most applicable framework for the proposed project. The theory focuses on driving and restraining forces that describe behavioral change due to implementing a specific intervention. According to Lewin, behavior change occurs in three stages; unfreezing, moving, and refreezing. Section 3 will focus on the collection and analysis of evidence based on the stated gap in practice. The main areas to be covered will include the practice-focused question, sources of evidence, research, and synthesis of the findings.

Section 3: Collection and Analysis of Evidence

Introduction

Tobacco use increases the risk of contracting various illnesses, such as lung cancer, cardiovascular and respiratory diseases, stroke, blindness, Alzheimer's, vascular dementia, deafness, osteoporosis, and lower bone mineral density (AL-Bashaireh et al., 2018; West, 2017). Tobacco users also have a higher risk of experiencing adverse effects, including mortality, from noncommunicable diseases (Garcia et al., 2017). Smoking is the leading cause of preventable deaths in the United States. It accounts for 480,000 deaths annually (CDC, n.d.-b; Garcia et al., 2017; Lee & Son, 2019). In spite of these risks, the prevalence of tobacco use among U.S. adults remains high, at about 15.1% (CDC, n.d.-b).

The USPSTF developed guidelines recommending that primary healthcare providers screen all patients for tobacco use. The purpose was to determine their smoking status and initiate cessation programs (Olenik & Mospan, 2017). However, the rates of smoking status screening in primary care settings remain low across the United States (Polubriaginof et al., 2017). At the primary healthcare clinic in Northeast Texas that served as the project site, about half of the patient population smoke cigarettes. However, there was no standardized screening for smoking status or smoking cessation despite the high volume of patients with cardiovascular diseases. A needs assessment conducted by the DNP student at the primary healthcare clinic established that the healthcare providers lack adequate knowledge to conduct screening for smoking status and guide them through smoking cessation efforts.

The aim of the DNP project was to promote tobacco use screening at the identified practice setting. The project included an education program for the

healthcare providers that was based on the 5As smoking cessation model. The 5A model helps healthcare providers successfully identify tobacco users and select the most appropriate interventions depending on their willingness to quit. In this section, I describe the methodological approach that was used to implement and evaluate the impact of the intervention. The section also includes practice-focused question, the sources of evidence, and the procedures for analyzing and synthesizing the evidence.

Practice-Focused Question

The local problem identified in the primary healthcare clinic was the lack of standardized procedures for screening patients for their smoking status and implementing smoking cessation interventions. The primary healthcare clinic has a high volume of cardiovascular patients, half of whom smoke cigarettes. The healthcare providers working in the practice setting have stated that they do not always know how to introduce smoking cessation to their patients. The gap in practice lacks a standardized smoking status screening and cessation program in the primary care center. The identified problem entailed the lack of provider knowledge and awareness of screening patients for their smoking status and implementing smoking cessation interventions. The intervention was a staff education program using the 5As model. The model is an evidence-based behavior change framework detailing the five steps practitioners can adopt for a successful smoking cessation intervention. The following practice-focused question served as the basis for the project: Will a staff education program specifically designed to instruct healthcare providers on using the 5As intervention with cardiovascular patients increase their knowledge of smoking cessation?

In developing the DNP project, I sought to implement an educational program to train healthcare providers at the identified clinic on the 5As model of promoting smoking cessation. I developed the educational program by customizing the AHRQ 5As smoking cessation model. The revision fits the primary healthcare clinic's needs. The project evaluation included assessing the educational program's validity and its impact on the healthcare providers' knowledge of implementing evidence-based smoking cessation programs for their patients. The project purpose aligned with the practice-focused question regarding the assignment of the population, intervention, and outcomes under study.

The population comprised the healthcare providers working at the facility, who received education on using the 5As model to initiate smoking cessation interventions for cardiovascular disease patients. The intervention was a staff educational program for training healthcare providers on adapting the 5As model of smoking cessation for their patients. The 5As model is an evidence-based intervention for smoking cessation. It has five steps: (a) asking patients about smoking at every visit, (b) advising all tobacco users to quit, (c) assessing their willingness to stop, (d) assisting their efforts using treatment and referral for resources, and (e) conducting follow-up and supporting the patient's cessation efforts (AHRQ, 2012; Olenik & Mospan, 2017; Sturgiss & Van Weel, 2017). I evaluated the difference by comparing the healthcare provider's knowledge of smoking cessation approaches before and after the staff education program. The evaluation outcome was the change in the healthcare provider's knowledge of the evidence-based smoking cessation intervention.

Sources of Evidence

The survey assessed the participants' levels of knowledge of using the five evidence-based approaches to implement smoking cessation intervention for patients willing to quit tobacco use. I relied on data collected from the project participants using questionnaires to address the practice-focused question. I used the collected data to address the clinical question by providing the participants' scores representing their levels of knowledge regarding smoking cessation interventions. To ascertain the staff education program's effectiveness in improving the healthcare provider's knowledge, I compared data collected from the participants before and after training. Collecting the data twice, before and after the intervention, was the most appropriate technique to establish the difference, if any, in participant knowledge levels after exposure to the education program. This knowledge allowed me to address the clinical question.

Participants

The project participants comprised the primary healthcare providers working at the clinic. The project participants included five healthcare providers comprising two physicians, one NP, and two medical assistants. I selected the physicians, NP, and medical assistants at the project population to write prescriptions and request consultations. The patients visiting the primary care clinic often see a physician or an NP; thus, the population can assess for smoking status and commence cessation treatment. On the other hand, medical assistants interact with all the patients visiting the facility at some level. Therefore, they can assess and implement smoking cessation interventions. I targeted all healthcare providers working at the unit to participate in the educational session and data collection. In doing so, I took care to

inform healthcare providers that participating in the data collection process was voluntary.

Population and Sample

The overall population comprised primary healthcare providers working in a primary care healthcare clinic. The sample constituted five healthcare providers in which two physicians, one NP, and two medical assistants were included. I asked staff to participate in the education session and data collection process, which I indicated was voluntary. I made known that participation was voluntary, and the healthcare professionals who agreed to be involved in the study provided implied consent as confirmation for agreeing to participate. The inclusion criteria included (a) healthcare providers working in the clinic, and fluent in English.

Procedures

The nursing manager at the primary healthcare clinic setting conducted the educational program's implementation and evaluation procedures. The procedures involving collecting data to address the practice-focused question involved recruiting the project participants, implementing the educational intervention, and issuing questionnaires for completion. I developed the educational program (see Appendix A) as an intervention and a questionnaire (see Appendix B) for assessing the healthcare providers' level of knowledge regarding smoking cessation interventions for helping their patients. I guided the nursing manager regarding implementation and data collection procedures using the questionnaires. The nurse manager presented the collected deidentified data to me for analysis and conclusions.

I addressed the first part of developing an educational program by evaluating the project intervention's relevance and validity. An expert panel consisting of the

nurse manager, an administrator, and a cardiologist evaluated the staff education plan to teach the healthcare providers how to use the 5A protocol. The experts scored a validation form (see Appendix C) and analyzed the average responses using Lynn's (1986) model to determine the education program's content validity. The content validity index (CVI) highlighted the educational program's validity, and the pretest/posttest survey. I calculated the corresponding content validity scores for each intervention's four categories and the pretest/posttest survey to calculate the CVI. The categories are (a) learning objectives, (b) education content, (c) teaching materials/method, and (d) the pretest/posttest questionnaire. The responses ranged from 1 for *not relevant* to 4 for *highly relevant*. I used the percentage of experts who endorsed each response (scoring it as a 4 or 3) to determine the CVI for each category.

Protections

The procedures used to ensure the project participants' ethical protection included consent forms, protection of participant's confidentiality, maintenance of anonymity, and submission of the project procedures to the Walden University IRB for approval. I used SurveyMonkey to ensure confidentiality and anonymity during participant recruitment and data collection.

The nursing manager held the first Zoom meeting, during which I presented the education program. The manager informed the attendees of the need to participate in baseline data collection and informed them of the data collection's confidential nature. I assured participants that they could remain anonymous and encourage them to log in using the assigned usernames. I noted that only I would analyze the data. I also informed potential participants that participation was voluntary and that not

participating would have no consequences. I told the participants that they could withdraw at any stage of the project. In the final analysis, I did not use data from participants who withdrew.

The participants used login credentials which comprised of four random digits to mitigate potential tracking. The nursing manager could not access the data provided; only I had access. Although I had access to the participants' data, I did not contact the participants. I maintained confidentiality and anonymity throughout the project. After retrieval and analysis, I deleted the collected data from the student's computer and the SurveyMonkey website.

To uphold the participants' safety, I obtained approval from the Walden University IRB before implementing project. According to the *Belmont Report*, ethical considerations that underlie research involving human subjects include the principles of respect for persons, justice, and beneficence (National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research, 1979). The IRB reviewed the project procedures to ensure that they adhered to the ethical principles outlined in the *Belmont Report*.

Analysis and Synthesis

I retrieved and recorded the collected data from the participating healthcare providers in a Microsoft Excel file. The data comprised "yes" or "no" responses. I coded the data as 1 or 0 and stored the information in the Excel file. I matched the pretest and posttest data for every participant based on the four-digit login codes. I counted the number of survey items with correct responses at the end of each participant's list of responses.

The first step in data analysis was recording the average number of questions with correct responses for the pretest and posttest datasets. The percentage change in the number of questions with correct responses determined the participants' knowledge. Next, using Excel, I calculated the percentage change in the participant's knowledge level. All healthcare providers working at the primary healthcare clinic were requested to participate in the instruction. Before and after the intervention, the participants' responses determined a significant improvement in their knowledge level. The significance of the difference in the participants' knowledge levels before and after the intervention was used to address the practice-focused question. The analysis presented evidence regarding whether the staff education program improved the healthcare providers' knowledge, thus addressing the practice-focused question.

Summary

Smoking is the leading contributor to preventable deaths in the United States (CDC, n.d.-b; Garcia, 2017). Numerous interventions can be used to prevent the adverse effects of noncommunicable diseases caused by smoking. In 2015, USPSTF recommended screening all primary healthcare patients for smoking status and implementing smoking cessation interventions. Yet, 5 years after the USPSTF recommendations, many U.S. primary care facilities do not conduct smoking status screenings and cessation for their patients.

About half of the patients in the practice setting are smokers. The facility serves up to 1,500 patients with cardiovascular diseases annually; hence, staff have the opportunity to implement interventions to increase smoking cessation. The healthcare providers at the primary healthcare clinic did not have adequate knowledge of smoking assessment and the resources required for cessation.

My aim in developing the DNP project was to implement and evaluate a staff education program's impact on using the 5As of smoking cessation. The 5As model is an evidence-based framework for healthcare providers to guide smoking cessation interventions for their patients. The model comprises five steps: assessing the smoking status and willingness to quit, advising patients to stop, providing treatment, and conducting follow-up to facilitate the cessation of tobacco use in patients. I developed the staff education program. A panel of experts consisting of the nurse manager, an administrator, and a cardiologist evaluated the program to establish its relevance and validity. The healthcare providers working in the practice setting attended the presentation of the validated program. The healthcare providers undertook pre- and postimplementation tests to assess their knowledge of implementing smoking cessation interventions, comparing the participants' knowledge levels determined if the staff educational program effectively improves the healthcare providers' knowledge. In the next section, I present the data analysis results and the project findings. This chapter contains the implications of the findings and the recommendations for nursing practice.

Section 4: Findings and Recommendations

Introduction

The gap in practice that was addressed in this project was the inadequate screening for tobacco use among cardiovascular patients at the selected project site. The local problem identified in the practice setting was the lack of standardized procedures for smoking status screening among patients and implementing smoking cessation interventions. The identified problem entailed the lack of provider knowledge and awareness of screening patients for their smoking status and implementing smoking cessation interventions. The following practice-focused question was the basis for the project: Will a staff education program specifically designed to instruct healthcare providers on using the 5As intervention with cardiovascular patients increase their knowledge of smoking cessation? In conducting the DNP project, I wanted to implement an educational program to train healthcare providers at the identified clinic on the 5As model of promoting smoking cessation.

Before the educational sessions, I performed Lynn's (1986) validation for the lesson plan. The educational program and the pretest/posttest survey were found to be valid. Afterward, a pretest survey was provided to the participants to assess their knowledge levels on smoking cessation intervention. The participants completed the survey anonymously, identifying themselves using pseudo codes that I provided to them. The pretest comprised questions that examined the participants' knowledge of the 5As model (see Appendix B). The questionnaire consisted of nine questions, and it was completed by five participants before the intervention, not all previously described participants answered the questionnaire.

After the collection of preintervention data, the participants were educated on the use of the 5As model. The educational intervention was performed through the Zoom meeting application. Also, the participants were provided with the posttest survey (see Appendix B). There were five participants who responded to the postintervention survey. The responses of the participants were matched with baseline responses for scoring based on the correct answers and analysis.

Findings and Implications

The panel of three experts consisting of the nurse manager, an administrator, and a cardiologist validated the pretest-posttest and the staff education program. Using a validated questionnaire improved the integrity of the data collected. The calculated CVI informed the presentation of the educational program's validity and the pretest/posttest survey. Table 1 shows the experts' scoring of the validity of the educational intervention. On average, the experts deemed the educational program relevant; thus, it was valid. Therefore, all the experts endorsed the educational program and the pretest/posttest questionnaire as being relevant. Table 2 contains the accepted CVI for any given number of experts. The evaluation experts received any category that scored less than ideal.

Table 1

Scores for Each Expert on Validity of the Educational Program

Expert	Question scores			
	Question 1	Question 2	Question 3	Question 4
1	4	3	4	4
2	4	4	4	4
3	4	3	4	4
4	4	4	4	4

Note. Question 1 concerned whether the learning objectives were relevant to the needs of the clinic; Question 2, whether the education content met the learning objectives; Question 3, whether the training materials and tools were relevant; and Question 4, whether the pretest/posttest questionnaire was aligned with the education content.

Table 2

Content Validity Indexes From Lynn's Model

Number of experts	2	3	4	5	6	7	8
2	1						
3	**0.67**	1					
4	0.50	**0.75**	1				
5	0.40	0.60	**0.80**	1			
6	0.33	0.50	0.67	**0.83**	1		
7	0.29	0.43	0.57	0.71	**0.86**	1	
8	0.25	0.38	0.50	0.63	0.75	**0.78**	**0.89**

Note. The accepted CVIs are in bold. Adapted from "Determination and Quantification of Content Validity," by M. Lynn, 1986, *Nursing Research, 35*(6), p. 384.

The analysis of evidence involved assessing the feedback of healthcare providers on the 5As educational program and determining whether their knowledge levels had changed. The healthcare providers included two physicians, one NP, and

two medical assistants. Based on the findings, all the participants felt that the training was straightforward; they provided no negative feedback. Based on the survey that the healthcare providers completed before and after the intervention indicated, the knowledge levels of the participants increased after the program.

Figure 1 shows the comparison of pre- and posteducational intervention survey scores for each participant. Based on the findings, the knowledge levels for all the participants increased after the education of the providers on effective smoking cessation interventions. Therefore, the intervention was effective in increasing the knowledge levels of the healthcare providers.

Figure 1

Bar Graph of Pre- and Postsurvey Scores for Each Healthcare Provider

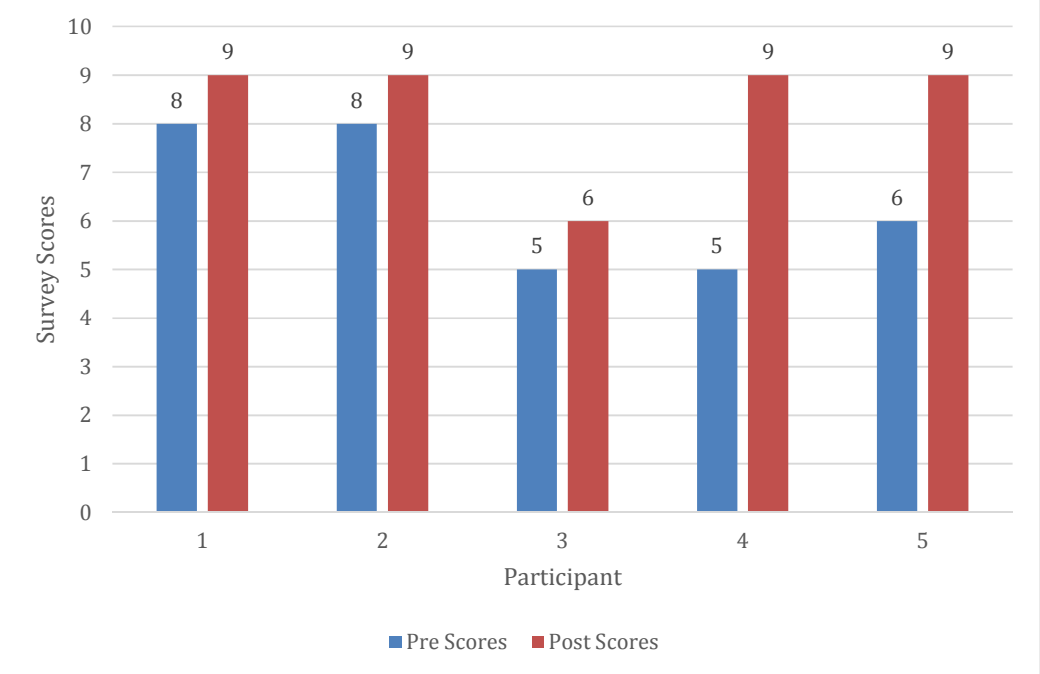

Figure 2 shows the average survey scores of the participants before and after the study. Based on the findings, there was an increase in the average survey score

from 6.4 (*SD* = 1.52) to 8.4 (*SD* = 1.34). The average comparison of pre- and postscores also confirms that all the participants' knowledge levels increased after the implementation of the intervention.

Figure 2

Bar Plot of Average Pre- and Postsurvey Scores

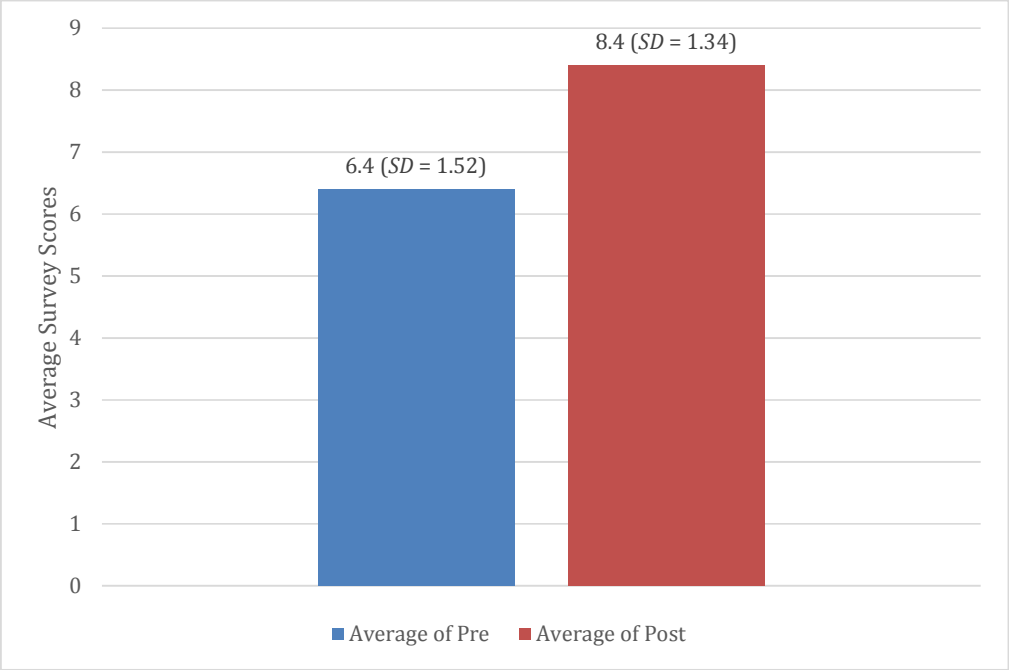

Table 3 shows the survey scores of the participants before and after the study. The survey scores improved after the educational intervention.

Table 3

Pre- and Postintervention Survey Scores

Time of intervention	*M* (*SD*)
T1	6.4 (1.52)
T2	8.4 (1.34)

Note. T1 = preintervention scores; T2 = postintervention scores.

Table 4 shows paired samples *t*-test statistics between pre- and postintervention scores of the participants. Based on the findings, there was a statistically significant difference between the pre- and postintervention scores of the healthcare providers $t(4) = -3.16$, $p < 0.05$. Therefore, the educational intervention significantly increased the knowledge levels of the participants on effective smoking cessation interventions.

Table 4

Paired Samples T Test for Pre- and Postintervention Scores

Intervention	*M* (*SD*)	*M* difference (*SD*)	95% CI of the difference		*t*	*Df*	Sig. (2-tailed)
			Lower	Upper			
Pre	6.40 (1.52)	-2.00 (1.41)	.3.76	-.24	-3.16	4	.035
Post	8.40 (1.34)						

Unanticipated Limitations or Outcomes

The limitation experienced in this project was the small sample size. The results obtained from a more diverse population might not be similar to the findings of this project. To generalize the results, a larger sample size should have been used instead. Also, three of the eight healthcare providers at the project site did not

participate in the survey due to COVID-19, rotating work, and schedules. The survey was only responded to by five participants.

Implications for Individuals, Communities, Institutions, and Systems

The findings of this project imply that healthcare providers' education was effective in imposing smoking cessation among cardiovascular patients. Therefore, by educating healthcare providers, individual cardiovascular patients may be more likely to practice smoking cessation. Findings suggest that there were increased incidences of tobacco use among the cardiovascular patients because the healthcare providers lacked knowledge on how to implement smoking cessation.

Cigarette smoking is responsible for around 10% of cardiovascular diseases deaths (Khoramdad et al., 2019). Also, smoking affects not only those who smoke but those around smokers. In their research, Khoramdad et al. (2019) found that there was an association between coronary heart disease among nonsmokers who had lived with smokers. Therefore, the findings of this project indicate that not only patients may be saved from deaths due to cardiovascular diseases, but also the entire community where the patients live. Also, because the aim of healthcare institutions is to promote good health among the patients, smoking cessation due to educational intervention may improve patient outcomes.

Additionally, when more patients quit smoking, there may be more positive outcomes for cardiovascular patients; thus, healthcare costs may be decreased (Baker et al., 2018). The annual costs due to smoking in the United States between 2009 to 2013 were estimated at $289 and $332 billion (Baker et al., 2018). This amount is high, and it affects the economy and the health systems. Thus, when smoking

cessation is practiced, the costs incurred due to smoking may be reduced, thus, the healthcare system may also improve.

Implications for Positive Social Change

U.S. society faces a variety of challenges in sectors such as health, education, and environment (Stephan et al., 2016). Organizations play a vital role in addressing the challenges through stimulation of a transformational process referred as positive social change (Stephan et al., 2016). The U.S. healthcare system is facing challenges related to increased cases of cardiovascular diseases and deaths rates related to the condition. Given that smoking is associated with cardiovascular disease, the implementation of this project's educational program may decrease these cases. As identified in this project, the healthcare providers lacked the proper knowledge to educate patients on smoking cessation. Based on the findings, the educational program increased the knowledge levels of the participants on the use of 5As model for smoking cessation. Therefore, the increase in knowledge levels of healthcare providers implies that more patients may cease smoking in society, thus leading to a positive social change.

Recommendations

The identified recommendations include the need for the unit leader to reinforce the education of healthcare providers on the 5As model for effective smoking cessation of the patients. After the educational intervention, the findings of this study indicated there was an increase in the knowledge levels of the participants concerning effective smoking cessation intervention. Therefore, the healthcare providers at the primary healthcare clinic should be frequently educated on the 5As model and how to apply it to impose smoking cessation among the cardiovascular

diseases' patients. The increase in the knowledge levels imply that the staff can quickly and effectively assess each patient and help them to adhere to a quit plan for smoking. Also, all the new staff who will join the primary healthcare clinic should complete the educational program during their orientation. Additionally, all the staff at the primary healthcare clinic should complete the program at least annually.

Cardiovascular disease patients should be screened frequently for tobacco consumption. The medical providers should be educated on screening patients to determine their smoking status. Moreover, healthcare providers should be educated continuously to implement smoking cessation among cardiovascular patients. The education of the healthcare providers should happen at least annually. The educational materials should be updated regularly based on new scientific information that emerges on smoking cessation. The healthcare providers should also be provided with handouts about the implementation of the smoking cessation 5As model. The model may enable them to make references when enforcing smoking cessation among cardiovascular patients.

Contribution of the Project Team

The project team consisted of the nurse manager, an administrator, a cardiologist, a nurse educator, and a nursing project coordinator. The nurse manager, an administrator, and a cardiologist evaluated the staff education plan to teach the healthcare providers how to use the 5A protocol. A nurse educator offered lectures and training to improve providers' knowledge on smoking cessation. The investigator, who was experienced in data collection, helped me collect data from the participants. The nursing coordinator assisted in the evaluation of the educational program.

The recommendations were implemented by the nurse manager, an administrator, a cardiologist, and a nurse educator. The nurse manager, an administrator, and a cardiologist helped in the development and updating of the educational materials used to educate providers on the implementation of smoking cessation. The nurse educator will carry out the educational lectures to increase the healthcare providers' knowledge on implementing the 5As model after the project.

Strengths and Limitations of the Project

The strength of this project was the insight it yielded into implementing the 5As model to enforce smoking cessation among cardiovascular patients. A small sample size was a limitation. The participant sample size was small due to the imposition of alternate workdays and other changes at the project site because of the COVID-19 pandemic. Due to the small sample size, the results cannot be generalized to the larger population. Future researchers should use larger sample sizes by including more clinical facilities.

Section 5: Dissemination Plan

The findings of this project will be disseminated at the university library so that other students can expound on them. The findings of this project will be presented to the management of the clinical setting by myself. The results will also be posted in the lobby of the clinical setting for medical providers to be informed. Also, the findings of this project may be posted on the clinical setting's website and social media accounts. To reach the wider nursing audiences, the findings may be presented to the existing social media platforms and websites for all medical providers. The results will also be emailed to healthcare providers using addresses obtained from the providers' databases.

Analysis of Self

As a practitioner and as a scholar, my role was to ensure that the required knowledge was included in the educational intervention. Additionally, as a project investigator, I was the lead planner and oversaw the data collection process and implementation of the educational program. Based on the experience I obtained as the lead planner, I believe that the current state of the clinical site will improve if the proposed intervention and recommendations are followed. In conducting the project, I learned that most of the healthcare providers at the clinical site lack knowledge on how they can improve smoking cessation; thus, the intervention should be beneficial. This project was completed successfully, as was expected. The challenges experienced stemmed from conducting the project during the COVID-19 pandemic and having to navigate the rotating of staff in the office and staff working from home.

Summary

The gap in practice for this project was the inadequate screening for tobacco use among cardiovascular patients at the selected project site. Based on the findings, all the healthcare providers felt that the training was straightforward; there was no negative feedback. Also, the survey administered to the healthcare providers before and after the intervention showed that participants' knowledge levels increased after the program. The limitation experienced in this project was the small sample size. Recommendations include using a large sample size in the future, regularly screening patients for tobacco consumption, educating healthcare providers, and providing handouts on the 5As model. The strength of this study lies in its insight into implementing the 5As model to enforce smoking cessation among cardiovascular patients. Findings show that implementing an educational program on smoking cessation increased the knowledge levels and attitude of participating healthcare providers on using the 5As model. With greater self-efficacy, healthcare providers at the project site may be more effective in screening for tobacco use and promoting the initiation of cessation programs among patients with cardiovascular disease.

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Appendix A: The Education Program

Learning objectives for the educational plan

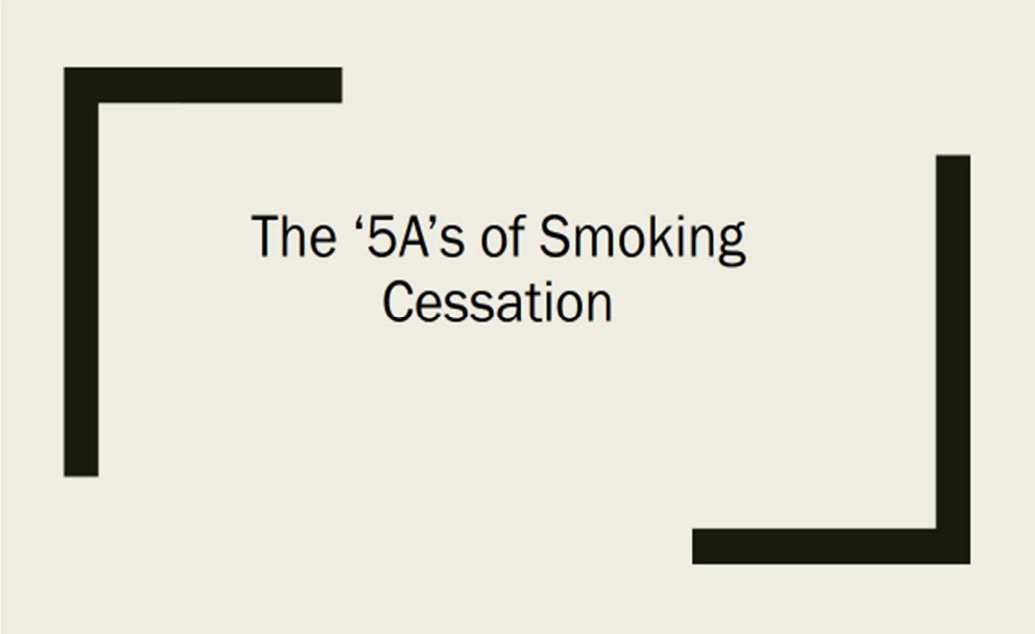
1. The participants will learn how to screen for smoking status in patients and willingness to stop.
2. The participants will learn about the available smoking cessation interventions available for patients.
3. The participants will learn about how to guide their patients in their smoking cessation efforts.

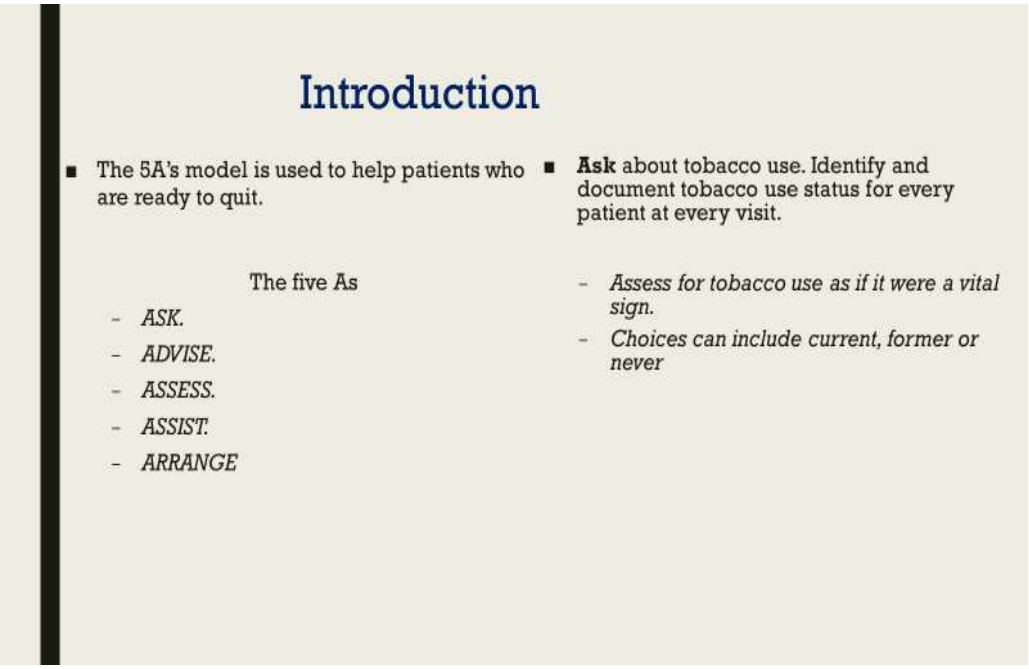
Instructional outline

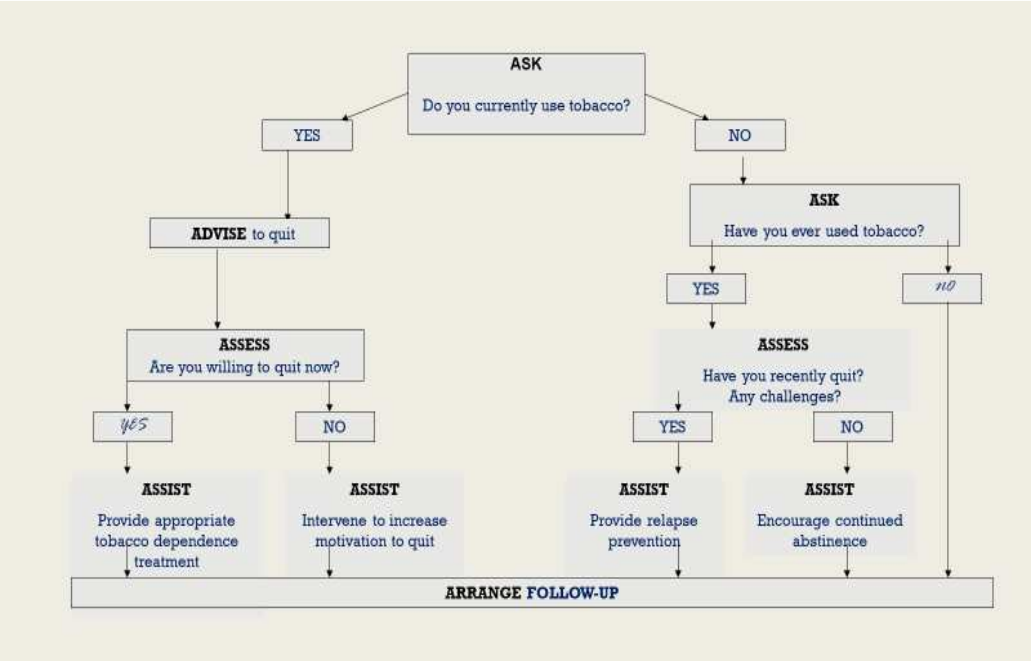
1. The participants will complete a pretest assessment using a questionnaire.
2. The participants will watch the short video by the American Lung Association (2018) introducing smoking cessation.
3. The presenter will introduce smoking cessation, the need to assess smoking status and willingness to stop, and advice on quitting using a PowerPoint presentation.
4. The project investigator will present another video to demonstrate the use of the 5As to advise and assist patients on smoking cessation. The video is from the behavioral health and wellness program (2015).
5. The project investigator will give a final presentation on using the 5As model for smoking cessation.
6. The participants will then discuss the video and presentation covered and how they can utilize the same to help their patients stop smoking.

7. The DNP student will use a questionnaire to conduct a post-test assessment of the participants' knowledge.

Education presentation







Intervention: Advise

- Advise to quit. In a clear, strong and personalized manner urge every tobacco user to quit.

Advise should be:

- **Clear:** "It is important that you quit smoking (or using chewing tobacco) now and I can help you." "Cutting down while you are ill is not enough." "Occasional or light smoking is still dangerous."
- **Strong:** "As your clinician, I need you to know that quitting smoking is the most important thing you can do to protect your health now and in the future. The clinic staff and I will help you."
- **Personalized:** Tie tobacco use to current symptoms and health concerns, and/or its social and economic costs, and/or the impact of tobacco use on children and others in the household. "Continuing to smoke makes your asthma worse and quitting may dramatically improve your health." "Quitting smoking may reduce the number of ear infections your child has.

Intervention: Assess

- Assess willingness to make a quit attempt. Is the tobacco user willing to make a quit attempt at this time?
- Assess patient's willingness to quit: "Are you willing to give quitting a try?"
- If the patient is willing to make a quit attempt at this time, provide assistance.
- If the patient will participate in an intensive treatment, deliver such a treatment or link/refer to an intensive intervention.
- If the patient is a member of a special population (e.g., adolescent, pregnant smoker, racial/ethnic minority), consider providing additional information.
- If the patient clearly states he or she is unwilling to make a quit attempt at this time, provide an intervention shown to increase future quit attempts.

Intervention: ASSIST

Assist in quit attempt.

- For patients unwilling to quit at the time, provide interventions designed to increase future quit attempts.
- For the patient's willing to quit, make a quitting plan as follows;
  - *Set a quit date. Ideally, the quit date should be within 2 weeks.*
  - *Tell family, friends, and coworkers about quitting and request understanding and support.*
  - *Anticipate challenges to the upcoming quit attempt, particularly during the critical first few weeks. These include nicotine withdrawal symptoms.*
  - *Remove tobacco products from your environment. Prior to quitting, avoid smoking in places where you spend a lot of time (e.g., work, home, car). Make your home smoke-free.*
- Recommend the use of approved medication, except where contraindicated or with specific populations for which there is insufficient evidence of effectiveness (i.e., pregnant women, smokeless tobacco users, light smokers and adolescents).

Intervention: ARRANGE

- Arrange follow-up. For the patient willing to make a quit attempt, arrange for follow-up contacts, beginning within the first week after the quit date. For patients unwilling to make a quit attempt at the time, address tobacco dependence and willingness to quit at next clinic visit.
- Actions during follow-up contact.
  - *For all patients, identify problems already encountered and anticipate challenges in the immediate future.*
  - *Assess medication use and problems.*
  - *Address tobacco use at next clinical visit (treat tobacco use as a chronic disease).*
  - *For patients who are abstinent, congratulate them on their success.*
  - *If tobacco use has occurred, review circumstances and elicit recommitment to total abstinence. Consider use of or link to more intensive treatment.*

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Appendix B: Pretest/Posttest Survey

Answer with a yes or a no.

1. Healthcare providers should assess smoking status like any other vital sign.

Yes	No

2. If patients are not willing to quit smoking, the healthcare provider should mention casually they need to.

Yes	No

3. When advising a patient to stop smoking, it is okay to tie their symptoms and their household's health concerns to smoking.

Yes	No

4. We should leave parents alone if they are not willing to quit smoking?

Yes	No

5. Healthcare providers should give additional attention to smoking members of special populations (e.g., adolescent, pregnant smoker, racial/ethnic minority) regarding the assistance and information required to stop smoking.

Yes	No

6. For patients willing to quit smoking, we should advise them of the challenges they are likely to face?

Yes	No

7. Healthcare providers should recommend medication for quitting smoking to people who are willing to quit.

Yes	No

8. Healthcare providers should assess medication use for people quitting smoking like any other illness.

Yes	No

9. Healthcare providers should treat tobacco use as a chronic disease.

Yes	No

Appendix C: Expert Evaluation Form

Please give each question the appropriate score and provide comments on improving scores below 3.

Score with numbers 1 to 4 as follows

1 = not relevant

2= unable to assess relevance without item revision

3= relevant but need minor alterations

4= very relevant and succinct

Question	Score	Comments
1. The relevance of the learning objectives to the needs of the clinic		
Objective 1		
Objective 2		
Objective 3		
2. The education content meets the learning objectives.		
Objective 1		
Objective 2		
Objective 3		
3. The relevance of the training materials/tools		
Tool 1 (Video)		

Tool 2 (PowerPoint)		
4. The relevance of the pretest-posttest questionnaire in alignment with the education content		
Question 1		
Question 2		
Question 3		
Question 4		
Question 5		
Question 6		
Question 7		
Question 8		
Question 9		
Question 10		